

Clinicopathological trends in colorectal cancer in a tertiary care hospital

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ABSTRACT

Objective: This study aims to retrospectively analyze the pattern of patients with colorectal cancer seen in King Abdul Aziz Hospital and Oncology Center, Jeddah, Kingdom of Saudi Arabia from January 1992 through to December 1997, with a view to determine various epidemiological and clinicopathological features of the disease.

Methods: All cases of colorectal cancer presented to King Abdul Aziz Hospital, Jeddah between January 1992 and December 1997 were retrospectively reviewed and the data was analysed to determine age, gender, ethnicity, subsite distribution, clinical presentation, histological type and staging of disease.

Results: A total of 160 patients were included in the study, with 78% of them being Saudi Nationals. The male to female ratio was 1:0.8. The mean age was 56.3 ± 14.98 years. The peak age of onset was in the 6th and 7th decade. The duration of symptoms varied from one to 24 months with the majority of patients having symptoms for

more than 6 months. Sixty-eight point two percent of these patients had primary disease originating from rectum or sigmoid colon, whereas 22.5% of patients had primary disease involving ascending and transverse colon, Anemia was present in 55% of patients. Among the 160 patients, 82.5% of them were histologically found to have adenocarcinoma. A total of 38.8% of patients were in stage B and 38.1% of patients were in stage C of Aster-Coller classification. No patients was found to be in stage A.

Conclusions: In general, we share many epidemiological features of developing countries for colorectal carcinoma. These included left sided subsite distribution and delayed presentation of the disease in an advanced stage. We stress the significance of public health education and a national screening program regarding colorectal cancer to improve the outcome.

Keywords: Colorectal cancer, adenoma, adenocarcinoma.

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The incidence and pattern of colorectal cancer varies remarkably from one country to another depending upon various genetic and environmental factors.¹ It is the leading cause of cancer related morbidity and mortality in North America, Western Europe and Australia. It is the 4th most frequent tumor and 2nd leading cause, of cancer related deaths in the United States of America (USA).^{2,3} The disease is believed to be relatively uncommon in South East

Asia, Middle East and Africa. Some of the earlier studies from the Kingdom of Saudi Arabia (KSA) and other Middle Eastern countries reflected this trend.⁴⁻⁶

A national cancer registry (NCR) has been set up in the KSA since January 1994 and cancer has been categorized as a mandatory notifiable diseases. Since then all cancer cases diagnosed anywhere in the KSA are expected to be registered with NCR. According

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to the 2nd report published by NCR in 1999, colorectal cancer accounts for 5.6% of all newly diagnosed cancers with an over all age standardized incidence rate (ASIR) of 4.5/100,000 population.⁷ King Abdul Aziz Hospital and Oncology Center is one of the main public hospitals in Jeddah, KSA. The oncology center in this hospital is the only facility in Ministry of Health Hospitals in Jeddah with the provision of all modalities of treatment for various malignancies. Consequently most of the oncology patients diagnosed in this region are referred to this hospital for further management.

The present study is aimed to retrospectively study the pattern of patients with colorectal cancer seen in this hospital from January 1992 through to December 1997 with a view to determine various epidemiological and clinicopathological features of this malignancy. We also aim to compare our results with those previously reported from the KSA and other countries.

Methods. All cases of colorectal cancer presented to King Abdul Aziz Hospital, Jeddah between January 1992 through to December 1997 were retrospectively reviewed. Their age, gender, ethnic origin, clinical presentation, duration of symptoms, site of primary and relevant past or family history was recorded on a pre designed proforma. All patients underwent standard laboratory, radiological and endoscopic studies for diagnosis and staging and these findings were noted. The histological type of the tumor was determined. Tumor staging of colorectal cancer was carried out according to Astler Coller modification of Duke's system,⁸ dividing it into stage A to C depending upon the extent of local involvement and regional node spread. Stage D was added to account for distant metastasis in accordance with Turnbull modification.⁹ The data was electronically analysed using computer software statistical package for social sciences program version 8.

Results. A total of 160 patients were included in the study. Out of these, 88 patients were male, whereas the rest were females with a male:female ratio of 1:0.8. One hundred and twenty five patients (78%) were Saudi nationals, and the remaining were non-Saudis. Their ages ranged from 22-80 years with a mean of 56.3 ± 14.98 years. The distribution of patients in various age groups is shown in **Table 1**. Twenty eight (17.5%) patients were below 40 years of age. The highest number of patients was between the ages of 50 and 70. **Table 2** shows the various presentations of these tumors. The duration of symptoms varied from one to 24 months in the majority of patients. Among the total, 55% of patients had symptoms of more than 6 months duration. No patient had past or family history of

Table 1 - Age distribution of colorectal cancer.

Age in years	N of patients (%) of Total	
17-22	3	1.9
23-27	3	1.9
28-32	3	1.9
33-37	10	6.2
38-42	10	6.2
43-47	7	4.4
53-57	18	11.2
58-62	21	13.2
63-67	22	13.8
68-72	24	15
73-77	21	13.1
78-82	8	5
	10	6.2
Total	160	
N=number		

Table 2 - Clinical features at presentation of colorectal carcinoma.

Symptoms	N of patients (%) of Total	
Abdominal pain	73	45.6
Altered bowel habit	74	46.6
Bleeding per rectum	82	51.3
Weight loss	37	23.1
Intestinal obstruction	39	21.3
Constipation	39	24.4
Vomiting	10	6.3
Anorexia	10	6.3
Painful defecation	2	1.3
Obesity	6	3.8
Abdominal mass	10	6.3
N=number		

Table 3 - Subsite distribution of colorectal cancer.

Symptoms	N of patients (%) of Total	
Rectum	51	31.9
Sigmoid colon	51	31.9
Recto sigmoid	7	4.4
Descending colon	3	1.9
Transverse colon	3	1.9
Ascending colon	33	20.6
Unknown	12	7.5
Total	160	100
N=number		

Table 4 - Histological patterns of colorectal cancer.

Histological Type	N of patients	% of Total
Adenocarcinoma	132	82.5
Mucinous adenocarcinoma	10	6.25
Signet ring carcinoma	8	5
Others	10	6.25
Total	160	100
N=number		

Table 5 - Stages (Aster-coller of colorectal cancer).

Stage of disease	N of patients	% of Total
B1	17	10.6
B2	18	11.3
B3	27	16.9
C1	16	10.0
C2	24	15.0
C3	21	13.1
D	37	23.1
Total	160	100
N=number		

ulcerative colitis or Crohn's disease. Ten (6.2%) patients had a documented history of polyps diagnosed previously. The subsite distribution is shown in **Table 3**, with majority of tumors arising from rectum and sigmoid colon (68.2%). Tumors originating from ascending and transverse colon accounted for 22.5% of cases.

Anemia (Hemoglobin of 10gm/dl or less) was present in 55% of patients. The distribution of anemia varied significantly in various subsites of primary colorectal carcinoma. About 50% of patients with left sided tumors had anemia on presentation, whereas 70% of tumors with tumors of ascending colon were anemic. Carcino embryonic antigen level varied from 1 to 850.2 with a mean of 48.62 units. Various histological patterns encountered are presented in **Table 4**. Adenocarcinoma was the most common tumor seen in 82.5% of cases. Tumor staging was carried out according to Aster-Coller classification^{8,9} and is represented in of **Table 5**. The majority of patients presented either in stage B (38.8%) or stage C (38.1%), whereas 23.1% of patients were in stage D. None of the patients had stage A on presentation.

Discussion. The epidemiology of colorectal cancer has generated more interest recently due to new developments in genetics and molecular biology of this disease. The epidemiological pattern of the disease varies markedly between different population groups.¹ The disease has a high incidence in Western countries and a low incidence in Asia, Middle East and Africa.^{2,3} In the KSA, colorectal cancer was thought to be an uncommon disease. This conclusion was drawn after various hospital based tumor registry studies published from different centers in the KSA.⁴⁻⁶ A national cancer Registry (NCR) was established in the KSA in January 1994 with the aim of registering all cancer cases in the KSA with the NCR. According to the 2nd cancer incidence report

published by the NCR,⁷ Age Standardized Incidence Rate (ASIR) for colorectal cancer is 4.6/100,000 for males and 4.4/100,000 for females in the KSA, where as ASIR for colorectal cancer is reported to be 16.5 for males and 11.2 for females in USA.¹⁰

Our study represents the pattern of colorectal cancer seen in King Abdul Aziz Hospital and Oncology Center, Jeddah which is a tertiary care facility in the Western Region of the KSA. In this study, the male to female ratio was 1:0.8 which is comparable to figures reported from NCR of KSA.⁷ The mean age at diagnosis was 58.3 years \pm 14.98. Among the total, 17.5% of patients were below 40 years of age. The peak age at presentation was in the 6th and 7th decade. A similar trend was observed in other local studies¹¹ and data from Western Studies.¹² The majority of patients (78%) were Saudi nationals. The non-Saudies were a small percentage of patients coming mainly from other Middle Eastern Countries, Africa and South East Asia. The majority of patients presented with the symptoms of abdominal pain, altered bowel habit and bleeding per rectum in various combinations. The other common symptoms included weight loss, intestinal obstruction and constipation. The duration of symptoms varied from one month to 2 years. In fact, 55% of patients had symptoms of more than 6 months duration.

None of the patients had a past or family history of inflammatory bowel disease (IBD). It is well known that patients with ulcerative colitis are at increased risk for developing colonic cancer depending upon the extent and duration of the disease. In KSA ulcerative colitis was thought to be relatively uncommon, but recent studies clearly show that the disease though less frequent than in the West is similar in distribution.¹³ The absence of history of IBD in our patients is not clear.

Ten percent of our patients had history of colonic polyps diagnosed previously. It is now well established that the majority of colonic cancers arise from pre-existing polyps with an adenoma-carcinoma

sequence. The absence of a history of polyps in the majority of our patients may be due to lack of any health screening and cancer surveillance program in the KSA. Polyps are relatively infrequently found in the KSA as evidenced in some large colonoscopic studies.¹⁴ It is likely that the disease is slightly different from that in the west and many of the cancers here arise denovo.

Subsite distribution in our study suggested that the majority of patients had primary disease involving either rectum or sigmoid colon. Among our cases, 20.5% of patients had disease originating from ascending colon. A similar left sided predominance has been reported from other studies in the Kingdom.¹⁵ Various studies of temporal trends of subsite distribution of colorectal cancer have shown that the incidence rate has increased for right sided colonic cancers.¹⁶ The factors for the different subsite distribution in our patients are not entirely obvious.

Fifty-five percent of patients had significant anemia at the time of diagnosis. On further analysis, half of the patients with tumors arising from rectum and sigmoid colon, were anemic, whereas 70% of patients with right sided tumors had anemia. This is not unexpected as left sided tumors are more likely to present early due to altered bowel habit or obstruction resulting from relatively narrower lumen. On the other hand, right sided tumors may attain a large size and produce anemia due to occult gastrointestinal bleeding before being diagnosed due to the large size of cecum and ascending colon. The majority of patients in our study had histopathological features of adenocarcinoma. Other histological types seen were Signet ring carcinoma and mucinous adenocarcinoma. This pattern is similar to the one reported previously.^{11,15} In our series the majority of the patients presented with an advanced stage of the disease. Most of the patients were in stage B (38.8%) or stage C (38.1%) of Aster-Coller classification. In fact 23.1% of patients were found to be in stage D at presentation. Similar trend in presentation has been reported in cancer incidence report of NCR in the KSA.⁷ The probable reason for the delayed presentation is poor health education and lack of awareness of the disease among patients.

In conclusion, colorectal carcinoma is not an uncommon disease in this part of the world as used to be considered previously. Although some differences do exist between the pattern seen in our series and that reported from elsewhere, none the less, it appears

that in general the disease is similar to that reported from other countries. We highlight the significance of having a health education and national screening programme for prevention and early detection of this disease.¹⁷ We hope that future prospective studies will help us to identify the factors associated with the changing epidemiological pattern of colorectal cancer in the KSA.

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